

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-202983

(43)Date of publication of application : 04.08.1998

(51)Int.Cl.

B41J 29/00
B41J 21/00
G06F 3/12

(21)Application number : 09-013759

(71)Applicant : FUJI XEROX CO LTD

(22)Date of filing : 28.01.1997

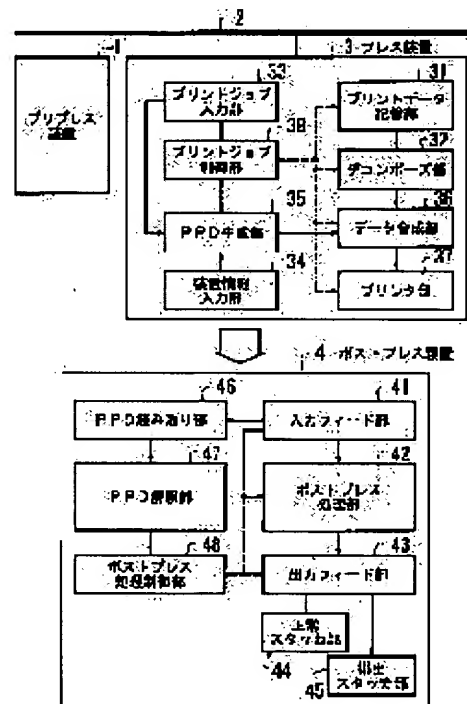
(72)Inventor : YOSHINARI TOSHIKI

(54) PRINTING SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a printing system, with which a unific printing process including a post-press processing course such as the cutting in size, folding, gathering and the like of a paper after printing can be performed.

SOLUTION: A print request sent from a pre-press device 1 is received through a network device 2 by a print job inputting part 33. Print data are stored in a print data storage part 31. Those print data are decomposed at a decomposing part 32. A post-press data producing part 35 produces post-press data on the basis of print data, print jobs and a device information. At a data decomposing part 36, these post-press data and print data decomposed at the decomposing part 32 are composed and then pressed at a printer part 37. A printed matter is read at the post-press data reading part of a post-press device 4 and interpreted at a post-press data interpreting part 47. In addition, a post-press processing controlling part 48 performs the setting and error processing of a post-press processing part 42.



LEGAL STATUS

[Date of request for examination]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] About a printing system, the form after printing severs especially this invention, it is broken, and it is related with the printing system which made it possible to automate down stream processing after printings, such as a chip box and a gather.

[0002]

[Description of the Prior Art] Presswork is roughly divided, consists of three processes, and consists of the PURIPURESU process which creates print data, a press process which prints print data on paper etc., and a postpress process of performing various processings after printing to the printed output form. A PURIPURESU process responds to creating print data with a personal computer etc. here, it responds to a press process printing the print data which constituted by the print server and the printer and were sent via network equipment, and a postpress process responds the printed output form to processing bookbinding, delivery, etc.

[0003] In these processes at the process from PURIPURESU to a press Print data are electronized by development of digital printing techniques, such as DTP (DeskTop Publishing) and a printing press. Further the PostScript (the trademark in each country of PostScript:U.S. Adobe Systems, or a trademark --) which is a Page Description Language The data format of print data is also unified by the spread of PDF (Portable Document Format) which is the file format of an abbreviation or print data henceforth, and automation of processing is attained.

[0004] However, since that from which electronic data were changed into physical media, such as paper, at the press process is received, for example, it severs, it breaks by the postpress process and a chip box, a gather, binding, cutting, bookbinding, etc. are processed, when receiving a printout, being lost is common [information, such as the page number which accompanied at the electronic data currently held to the press process and this time,].

[0005] For this reason, a postpress process becomes independent of PURIPURESU and a press process electronically, and each equipment which processes a printout at this postpress process has been special-purpose-machine-ized. Therefore, generally automation and integration including a postpress process of the whole presswork were difficult.

[0006] However, automation of a postpress process is tried by some of printing machines and printing machine manufacturers. For example, he is trying to automate a gather and the order processing by the mark of a printing lifter among processings of a postpress process according to the gather approach of single piece printed matter given in JP,8-188329,A. Moreover, there is specification "CIP3 (International Cooperation for Integration of Prepress, Press, and Postpress)-rint Production Format" Becoming. this -- the PostScript of a Page Description Language -- extending -- the inside of a format of PostScript -- a postpress process -- "-- it severs and enables it to describe even the information about rate" and a "chip box" At a postpress process, it severs to the machine which reads and severs the information and performs a rate and a chip box, the procedure of a rate and the procedure of a chip box are set up, this severs, and the process by the rate and the chip box is automated and integrated.

[0007] Moreover, after receiving and printing information electronic to a high-speed digital printer on a large scale, there are some which had a finishing processing facility to the printed matter. For example, carry out the stapler stop of the printed matter, or simple bookbinding is carried out, or the electronic sorter was adopted and processing of a part of postpress process of severing and processing a rate and a chip box by cut sheet use is realized. Since he is trying for this to treat a form in one machine fundamentally, it is because electronic intelligence can be systematically used at the process from a press to a postpress, and automation to a postpress process is realized by this.

[0008]

[Problem(s) to be Solved by the Invention] However, although automatic control is possible even if a last process and a gather machine are off-line since the mark of a printing lifter expresses a part of appliance control information and information about a sheet with the technique of a publication to JP,8-188329,A, since the amount of information was limited very much since the information used was a mark, and reading is also judged only by the existence of a mark, it is limited to simple control, and, moreover, cannot have expandability.

[0009] Moreover, by the specification of CIP3, although very fine setup, such as a program of a correspondence device, is possible, they does not have control functor. For this reason, since instrument setup information and easy program extent can use a format of this specification, complicated processing of inspection, error processing, etc. cannot be performed. Moreover, since only electronic information exists and verification of the adjustment of an actual form or a page cannot be performed, a fatal error is caused, without it being undetectable even if the location and the page number which a blank paper, an omission, etc. exist and insert are out of order on the way. Moreover, since the information about a sheet is not taken into consideration, the escape to a gather cannot be performed.

[0010] Furthermore, in the digital printer which has realized processing of a part of postpress process, since the postpress processing accompanied by paper handling is dedicated to one machine, it becomes a very big machine as a result. Moreover, although the color and the monochrome printer output needed to be tied to the device of direct post press processing in order to automate this process, although it is desirable to perform a gather (plug) after outputting by the color printer and monochrome printer, respectively if the mixture manuscript of a color and black and white is printed efficiently, there was a trouble that equipment grew large further, with this configuration.

[0011] This invention is made in view of such a point, and it aims at including to a postpress process and offering the printing system in which unific printing processing is possible.

[0012]

[Means for Solving the Problem] In the printing system which consists of press equipment which prints by receiving print data according to the print request from PURIPURESU equipment in order to solve the above-mentioned problem in this invention, and postpress equipment which processes to the printout by said press equipment said press equipment A print data storage means to memorize temporarily the print data created with PURIPURESU equipment, A print job input means to receive the print job which is the print request of said print data from a client, An equipment information maintenance means to hold the function and engine-performance information on the press equipment concerned and postpress equipment, Print data, a print job, and a postpress data generation means to generate the postpress data based on the language which described processing of a postpress process based on the information acquired from the equipment information input means, A merge means to compound the postpress data made with the print data from said print data storage means, and a postpress data generation means, The printer means which prints the data compounded with said merge means, Registration of the print request of the addition from the print job from said print job input means, and a postpress data generation means, The printing system characterized by having the print job control means which performs directions of the various data exchanges between said print data storage means, a postpress data generation means, and a merge means, starting/halt control to said printer means, etc. is offered.

[0013] According to such a printing system, if a print request is published from PURIPURESU equipment, the print job input means of press equipment receives as a print job, and saves print data to reception and a print data storage means according to the print job. On the other hand, with a postpress

data generation means, postpress data are generated based on print data, a print job, and equipment information, this is compounded with print data in a merge means, and it prints with a printer means. The printed printed matter is passed to postpress equipment as a processing object.

[0014] In the printing system which consists of press equipment which prints by receiving print data according to the print request from PURIPURESU equipment according to this invention, and postpress equipment which processes to the printout by said press equipment moreover, said postpress equipment An input feed means to receive the processing object outputted from said press equipment, A postpress processing means to process a postpress process to the processing object sent from said input feed means, An output feed means to discharge the processed processing object from said postpress processing means, The normal stacker means which carries out the stack of the output from said output feed means, A postpress data reading means to read said postpress data printed by the position of said processing object, A postpress data interpretation means to interpret the read postpress data and to acquire information required for control of said postpress processing means, The printing system characterized by having the postpress control means which performs control of said input feed means, a postpress processing means, and an output feed means based on the information on said postpress data interpretation means is offered.

[0015] According to this printing system, the processing object passed from press equipment is received with the input feed means of postpress equipment, and the postpress data printed by the processing object are then read with a postpress data reading means. With a postpress data interpretation means, information required for an input feed means, a postpress processing means, and an output feed means to process is taken out from the read postpress data, and it is sent through a postpress control means, respectively. Thereby, with postpress equipment, information required for a postpress processing means to process from press equipment is given with printed matter, and various control of a postpress processing means is attained by reading information in the printed matter in postpress equipment.

[0016]

~~[Embodiment of the Invention]~~ Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 is drawing showing the theoretic configuration of this invention. The printing system by this invention consists of press equipment 3 connected to PURIPURESU equipment 1 through network equipment 2, and postpress equipment 4 which receives supply of printed matter from this press equipment 3. PURIPURESU equipment 1 creates the electronic document data which it is going to print, i.e., print data. Press equipment 3 prints the print data created with PURIPURESU equipment 1 on reception and the paper which is physical media according to the print request (print job) from the PURIPURESU equipment 1. Postpress equipment 4 performs various processings after printing of a gather, bookbinding, delivery, etc. to the output form with which print data were printed.

[0017] The print data storage section 31 constituted so that press equipment 3 might receive print data from PURIPURESU equipment 1 via network equipment 2 in detail, The deconstructivism pause section 32 connected so that the output of this print data storage section 31 might be undergone, The print job input section 33 constituted so that a print job might be received from PURIPURESU equipment 1 via network equipment 2, The equipment information input section 34 constituted so that equipment information, such as postpress equipment 4, might be inputted beforehand, The postpress data (PPD) generation section 35 constituted so that the output of the print job input section 33 and the equipment information input section 34 might be undergone, The merge section 36 constituted so that the output of the deconstructivism pause section 32 and the postpress data generation section 35 might be undergone, While connecting so that the output of the printer section 37 connected so that the output of the merge section 36 might be undergone, and the print job input section 33 may be undergone It has the print job control section 38 connected so that the print data storage section 31, the deconstructivism pause section 32, the postpress data generation section 35, the merge section 36, and the printer section 37 might be controlled, respectively.

[0018] Moreover, the input feed section 41 in which postpress equipment 4 receives the printed matter of a processing object, The postpress processing section 42 constituted so that supply of printed matter might be received from this input feed section 41, The output feed section 43 constituted so that the

processing object by this postpress processing section 42 might be discharged, The normal stacker section 44 and the discharge stacker section 45 which were constituted so that the output from this output feed section 43 might be undergone, The postpress data (PPD) reading section 46 constituted so that the data printed by the printed matter which the input feed section 41 received might be read, While being constituted so that the information from the postpress data (PPD) interpretation section 47 constituted so that the reading output of this postpress data reading section 46 might be undergone, and this postpress data interpretation section 47 may be received It has the postpress processing control section 48 connected so that the input feed section 41, the postpress processing section 42, and the output feed section 43 might be controlled, respectively.

[0019] In the above-mentioned configuration, first, the equipment information input section 34 of press equipment 3 inputs the function and engine-performance information on the printer section 37 and postpress equipment 4, and holds those information. Here, if print data are created with PURIPURESU equipment 1 and the print request of the print data is published from PURIPURESU equipment 1, in press equipment 3, about print data, the print data storage section 31 will memorize temporarily, and the print job which is the print request of the print data will be received in the print job input section 33. A print job control section changes the print data memorized by the print data storage section 31 into the data which can print delivery and its print data on the deconstructivism pause section 32 according to the print job which 38 received.

[0020] On the other hand, the postpress data generation section 35 generates the postpress data (PPD) which are data for unifying and automating the processing in postpress equipment 4 based on the information acquired from the print job of the print data (it acquires from the print job control section 38) of the print data storage section 31, and the print job input section 33, and the equipment information input section 34. The data which were changed in the postpress data and the deconstructivism pause section 32 which were generated here and which can be printed are sent to the merge section 36. The merge section 36 merges these sent data, and uses them as the data which can be printed. The printer section 37 is printed on paper etc. in response to the data which can be printed from the merge section 36. Therefore, in addition to printing of print data original, in the printer section 37, printing of the postpress data for postpress equipment 4 will be performed.

[0021] In addition, to the print data storage section 31, the deconstructivism pause section 32, the postpress data generation section 35, and the merge section 36, direct various kinds of data exchanges between these, 38 controls starting, a halt, etc. to the printer section 37, and also a print job control section controls the whole press process by receiving the print request of the addition from the print job from the print job input section 33, or the postpress data generation section 35.

[0022] Thus, the printed matter with which postpress data were printed is sent to postpress equipment 4 next. With postpress equipment 4, the input feed section 41 passes printed matter to reception and the postpress processing section 42. The postpress processing section 42 performs processing of postpress process original to the printed matter supplied from the input feed section 41. The printed matter appropriately processed in this postpress processing section 42 is outputted to the normal stacker section 44 by the output feed section 43, and a stack is carried out.

[0023] On the other hand, the postpress data with which the printed matter supplied to the input feed section 41 was printed by the postpress data (PPD) reading section 46 in press equipment 3 are read. The read postpress data are passed to the postpress data (PPD) interpretation section 47. The postpress data interpretation section 47 interprets the read postpress data, performs a part of postpress processing according to the contents, and in order to perform processing of further postpress process original, it makes the setting information on postpress equipment 4. Based on the information interpreted in the postpress data interpretation section 47, the postpress processing control section 48 performs control of the input feed section 41, the postpress processing section 42, and the output feed section 43. Moreover, the stack of the printed matter judged that the output feed section 43 is unsuitable in the postpress interpretation section 47 or the postpress processing section 42 is carried out to the discharge stacker section 45.

[0024] Next, the detailed configuration of the postpress data generation section 35 of press equipment 3

is explained. Drawing 2 is drawing showing the example of a configuration of the postpress data generation section. While connecting with postpress data (PPD) management information storage section 35a and this postpress data control information storage section 35a, the postpress data generation section 35 Postpress language (PPL) generation section 35b constituted so that the information from the information on the print data storage section 31 which goes via the print job control section 38, the print job input section 33, and the equipment information input section 34 might be received, Postpress language (PPL) transducer 35c constituted so that the information from the output of this postpress language generation section 35b and the equipment information input section 34 might be received, The information from the output of this postpress language translation section 35c, the print job input section 33, and the equipment information input section 34 is received. 35d of and postpress language (PPL) drawing control sections constituted so that an output might be connected to the print job control section 38, The output of 35d of this postpress language drawing control section, postpress language translation section 35c, and the print job input section 33 was considered as the input, and it has postpress language (PPL) encoding section 35e constituted so that an output might be connected to the merge section 36.

[0025] Postpress language generation section 35b generates the postpress language which described the postpress management information for managing postpress down stream processing from the inputted print data, a print job, and equipment information, and postpress processing in the program or the script. Postpress data control information storage section 35a is held until postpress processing completes the postpress management information generated by postpress language generation section 35b. Postpress language translation section 35c changes the postpress language which is legible data generated by postpress language generation section 35b into the code which a computer can interpretation perform. Further, postpress language encoding section 35e encodes the changed postpress linguistic code to the data which a machine can read, and outputs it to the merge section 36. And since page number of sheets will increase from original page number of sheets when additional printing of postpress language encoding data generates while 35d of postpress language drawing control sections computes the location which prints postpress language encoding data and they pass it to postpress language encoding section 35e, the additional printing is notified to a print job control section.

[0026] Next, the detailed configuration of the postpress data interpretation section 47 of postpress equipment 4 is explained. Drawing 3 is drawing showing the example of a configuration of the postpress data interpretation section. Postpress language (PPL) decoding section 47a connected so that the postpress data interpretation section 47 might undergo the output of the postpress data reading section 46, Postpress language (PPL) interpretation control-section 47b connected so that the output of this postpress language decoding section 47a might be undergone, It has postpress language (PPL) code-conversion section 47c which connected the output to the postpress processing control section 48 in response to the output of this postpress language interpretation control-section 47b.

[0027] In the postpress data interpretation section 47, postpress language decoding section 47a decodes the postpress language encoding data inputted from the postpress data reading section 46, and passes them to postpress language interpretation control-section 47b. Postpress language interpretation control-section 47b interprets the decoded postpress linguistic code, and takes out the program executions (judgment of processing conditions etc.) described by it, and a setup or a control program required for processing of postpress original. And postpress language code-conversion section 47c changes further into the parameter and program of the equipment proper the postpress linguistic code which postpress language interpretation control-section 47b took out, and makes the job for setting it as the postpress processing control section 48.

[0028] Next, the gestalt of the operation which applied this invention to the network printing system is explained. Drawing 4 is drawing showing the outline configuration of a network printing system. In this block diagram, a client 10 corresponds to PURIPURESU equipment 1, and consists of personal computers, workstations, etc. which can create electronic document data. The client 10 is connected to press equipment 50 by network equipment 20. This press equipment 50 consists of two printers 52 and 53 with the print server 51. Here, a print server 51 corresponds to the function of each part except the printer section 37 in the press equipment 3 shown in drawing 1 , and printers 52 and 53 correspond to

the printer section 37 of press equipment 3. In addition, in this example, a printer 52 shall be made as the printer only for monochrome printings, a printer 53 shall be made into a color printer, and it shall have an electronic gather function, respectively. Postpress equipment 60 consists of a feeder 61, the stitcher equipment 62 and the cutting equipment 63 which are a postpress processor, a feeder 64, normal stacker equipment 65, discharge stacker equipment 66, an optical reader 67, an image data recognition processor 68, and a postpress control unit 69, and the optical reader 67 is arranged at the feeder 61. Here, the image data recognition processor 68 corresponds to the function of the postpress data interpretation section 47 of 4 of the postpress equipment shown in drawing 1, and the postpress control unit 69 corresponds to the function of the postpress processing control section 48.

[0029] If a print request is received from a client 10 as a print job, a print server 51 will generate in-between postpress data from the information on a print job, a printer 52, and the equipment that exists in down stream processing after 53, and will print it in print data with a print request, and a location which is cut off by cutting together, for example, finally.

[0030] The form by which the printed output was carried out from the printers 52 and 53 of press equipment 50 is first put on the feeder 61 of postpress equipment 60. At this time, the optical reader 67 acquires the image data of the postpress data currently printed by the location where the form was decided beforehand, and the image data recognition processor 68 recognizes that image data, and acquires postpress data by processing decoding / interpretation control and code conversion. A postpress control device 69 takes out in the sequence by which a feeder 61, stitcher equipment 62, cutting equipment 63, and a feeder 64 were controlled based on the postpress data which the image-data recognition processor 68 acquired, and the form in a feeder 61 was controlled, inside binding processing performs, then trimming the edges of the paper evenly processes, it makes the gestalt of a book, and the processed book is sent to normal stacker equipment 65 or discharge stacker equipment 66 by the feeder 64.

[0031] Next, while a concrete example is shown about detailed actuation of press equipment 50, it explains. Drawing 5 is a flow chart which shows the flow of actuation of press equipment. First, the print job input function of a print server 51 spools reception and its print job for the print request from a client 10 as a print job (step S1). The print data from a client 10 are also spooled to coincidence at the print data memory storage function (step S2). Next, the print job control function of a print server 51 judges whether printers 52 and 53 can operate (step S3), and if it recognizes that print actuation is possible, it directs to generate postpress data to a postpress data generation function. Then, a postpress data generation function takes out a print job from a print job input function (step S4).

[0032] Hereafter, a print job as shown in drawing 6 as a concrete example is considered. Drawing 6 is the explanatory view showing an example of a print job. According to the example of this print job, N ***** case is shown for the printed matter formed by filing the sheets 71, 72, 73, and 74 of four sheets inside with a staple 75, and carrying out. Print data have the print data Doc1 a cover and for back covers, the print data Doc2 for reward, and the print data Doc3, Doc4, and Doc5 for the texts. The print data Doc1 and Doc2 1 - 2 pages of the print data Doc3, and 3 - 4 pages of Doc5 on a sheet 71 on a sheet 72 Field attachment of the 1 - 4 pages (3 - 4 pages of the print data Doc3 and 1 - 2 pages of Doc5) of a sheet 73 and the print data Doc4 is carried out at a sheet 74, respectively. With these print data, the gather of the N section deed and them is carried out for double-sided printing to the form of for example, A3 NOBI, and inside binding of two places is performed, and suppose that trimming the edges of the paper evenly is carried out to the last.

[0033] Return, next the postpress data generation function of a print server 51 take out the attribute information about the print data of the print data memory storage function corresponding to a print job (going via a deconstructivism pause function and a print job control function) to the flow chart of drawing 5 (step S5). As the attribute information, the pagination of each print data, the size of a form, a color, monochrome information, etc. are acquirable.

[0034] As an example, it is assumed that the following attribute information was acquired. That is, in the print data Doc1, "2 pages / A4 / color", and Doc2 presuppose that "4 pages / A4 / black and white", and Doc4 had "4 pages / A4 / color", and, as for "2 pages / A4 / color", and Doc3, Doc5 had the attribute

information on "4 pages / A4 / black and white."

[0035] Next, the postpress data generation function of a print server 51 receives information, such as a class of postpress equipment 60 used after the printers 52 and 53 in press equipment 50, and printing, a function and the engine performance, and postpress language correspondence, from an equipment information input function (step S6).

[0036] At this time, it is assumed that equipment information as shown below was acquirable. The monochrome printer 52 and the printer 53 of a printer of a color are usable, and it has an electronic gather function, respectively. Two kinds of equipments are used for postpress processing. It is stitcher equipment [one has a feeder 61, and plug control of 2 Inn's 1 form is possible, and] 62 which can be carried out by continuing inside binding processing of the supplied form. The second is cutting equipment 63 which cuts out the filed book. And these stitcher equipment 62 and cutting equipment 63 can carry out interpretation activation of the postpress language.

[0037] A postpress data generation function creates the postpress data which described postpress processing based on the above information (step S7). The detail of creation of this postpress data is mentioned later. If postpress language is created by the postpress language generation function of a postpress data generation function, in a postpress language translation function, the postpress data which are legible data will be changed to the postpress linguistic code which a computer can interpretation perform (step S8).

[0038] Next, the postpress language drawing control function of the postpress data generation function of a print server 51 determines the drawing location of the postpress language encoding data which encoded this postpress linguistic code (step S9). The location of the optical reader 67 which reads the postpress data of postpress equipment 60, the printing range of an airline printer, the magnitude (found from postpress linguistic code size) of encoding data, and the contents of postpress processing (the part which is no longer trimming the edges of the paper evenly etc., and part which is not conspicuous in binding/chip box) are taken into consideration by the decision. Moreover, when there is no printing position, printing to another sheet is also performed. As an example of the printing position, since trimming the edges of the paper evenly is performed at a postpress process, the information (print data identification information) that size is small will be printed to the outside of a cutting location, and the comparatively large information on data size (postpress control information) will be printed on another sheet.

[0039] Next, it is judged whether there is any additional printing of postpress language encoding data (step S10). In this example, since printing is performed also on another sheet, it will be necessary to change the printing sequence specified by the print job by decision of the printing position of postpress language encoding data. Then, a postpress language drawing control function notifies additional printing processing to a print job control function (step S11). The print job control function which received modification of a print job starts print processing, after correcting a print job sequence.

[0040] First, a print job control function judges whether printing of print data is printing of only postpress language encoding data (step S12). Here, if the data which print are only postpress language encoding data, the postpress linguistic code printed to a postpress language drawing control function and the write-in location of the postpress language encoding data on a merge function will be notified (step S15). It is directed to a postpress language encoding function that a postpress language drawing control function changes the notified postpress linguistic code data into the data which the optical reader 67 and the image data recognition processor 68 of postpress equipment 60 can read. A postpress language encoding function encodes postpress linguistic code data by the approach set up beforehand (step S16), and postpress linguistic code data are developed in the location on the specified merge function (step S17). After expansion of postpress language encoding data is completed, it is directed that a print job control function prints the data on a merge function to printers 52 and 53. The printers 52 and 53 which received directions print the data developed by the merge function (step S18).

[0041] Next, the case where the data which print by decision of step S12 are with print data and postpress language encoding data is explained. First, a print job control function directs deconstructivism pause processing of the print data (step S13). The deconstructivism pause function in

which directions were received takes out the target print data from a print data memory storage function, deconstructivism pause processing is performed, and the data after a deconstructivism pause are developed in the location where it was specified on the merge function (step S14). Next, a print job control function notifies the write-in location of the postpress language data printed with print data, and the postpress language data on a merge function to a postpress language drawing control function (step S15). And like a previous example, postpress language data are encoded (step S16), the postpress language encoding data is developed on a merge function (step S17), and printing is performed (step S18). As an example at this time, print data identification information will be encoded among postpress language data, and it will be printed with print data. And it is judged whether all printing processings were completed (step S19), when it is termination, actuation of this press equipment is completed, and when printing processing remains, it returns to step S12.

[0042] Next, step S7 in the flow chart which shows the flow of actuation of press equipment, i.e., the detail of postpress data generation processing, is explained. Drawing 7 is a flow chart which shows the flow of postpress data generation processing. First, the postpress language generation function in a postpress data generation function saves the attribute information and equipment information on the print job and print data which were received at a postpress data control information storage function (step S21). Here, the configuration of postpress data is explained previously.

[0043] Drawing 8 is the explanatory view showing the configuration of postpress data. Postpress data consist of postpress management information 81, postpress control information 82, and print data identification information 83.

[0044] The postpress management information 81 consists of "print job information", "system management information", "sheet information", "equipment information", and "processing sequence information." Here, "print job information" contains document information (an identifier (DocID), a file name, a preservation location, pagination, implementer, etc.) besides being Job ID, job demand user ID, a date, etc., and printing number of copies (the serial number is managed as an identifier (BookID)). "System management information" contains the manager name, Manager ID, the contact, etc. "Sheet information" includes an identifier (SheetID), sheet physics attribute information (size, quality of paper, etc.), and page assignment information (both sides and one side, a color and black and white, DocID, the page number, etc.). "Equipment information" contains the level corresponding to a function, the engine performance, and postpress language of a printer and each postpress processor etc. And "processing sequence information" includes description of I/O gestalten, such as description of an activity sequence required in order to attain the demanded job, correspondence of equipment (a printer and each postpress processor) which realizes this activity and a sheet in each postpress processor, and a book (Book) which bound a book.

[0045] The postpress control information 82 consists of "an active parameter of each postpress equipment", and "a control script of each postpress equipment." Here, "the active parameter of each postpress equipment" has a parameter common to equipment, and the parameter of an equipment proper, and has the printing position of number of copies and sheet number of sheets, and print data identification information, the direction of sheet size feed, etc. as a parameter common to equipment. Moreover, "the control script of each postpress equipment" consists of sheet identifier check sequence description and postpress processing sequence description. A check procedure, the error notification approach, and the coping-with method (additional printing to include) are described by sheet identifier check sequence description, and an art, a procedure, the error notification approach, and the coping-with method (additional printing to include) are described by postpress processing sequence description. For example, the way and chip box location folded about chip box processing file about a gather / plug processing, a gather sequence files about binding processing, and the cutting approach and a cutting location are described as an art about a location, the number of binding, and cutting processing.

[0046] The print data identification information 83 consists of "an identifier of a sheet", and "sheet positional information." information for "the identifier of a sheet" to identify print data here -- being shown (JobID+BookID+SheetID) -- the sheet with which postpress control information was printed -- being shown (PPSSheetID) -- it contains. Moreover, "sheet positional information" includes the

information on the table and flesh side of a sheet, straight side and a short hand, and heavens, the ground, the left and the right.

[0047] It returns to drawing 7 and the postpress management information 81 is made first after saving the attribute information and equipment information on a print job and print data at a postpress data control information memory storage function. This information is used in order to manage postpress processing, and it is held at the postpress data control information storage function in press equipment until postpress processing is completed. Not only in the information received from each previous information input function, sheet information and processing sequence information are newly added, and the postpress management information 81 is held at a postpress data control information storage function (steps S22 and S23). Sheet information is made from the attribute information on a print job and print data, and correspondence (page assignment information) of the serial number (SheetID) of the form (sheet) which constitutes a book (Book), the physical attributes (size etc.) over the sheet, and the identifier (DocID) and the page number of the document printed by the sheet etc. is listed. The outline of this page assignment information is explained below.

[0048] Drawing 9 is drawing showing the outline of page assignment information. This page assignment information is created according to the print job shown in drawing 6. That is, it is related with four tables of sheets 71, 72, 73, and 74 which constitute a book (Book), and a hidden field which page of a document is assigned. This sheet information is information used in order are quick and to realize the additional printing demand from postpress equipment correctly while being middle data when generating postpress language.

[0049] Next, processing sequence information is generated from print job information, equipment information, and sheet information. It is middle data for this as well as sheet information to create the postpress language to postpress equipment. Below, the process in which processing sequence information is made from print job information, equipment information, and sheet information is shown.

[0050] Drawing 10 is the explanatory view showing the example of creation of processing sequence information. First, the logical process of postpress processing is made from print job information. Here, "printing", "a gather/plug", "inside binding", and down stream processing of "cutting" are made as logical down stream processing.

[0051] Next, the equipment obtained from equipment information is mapped at the above-mentioned process. If an example is followed, a monochrome printer and the printer of a color will perform a part of printing processing and gather processing, respectively, and the equipment of a degree will perform a plug activity and an inside binding process. And the last equipment performs trimming the edges of the paper evenly, and all postpress processings are ended.

[0052] Furthermore, the sheet between each equipment or the gestalten (the order of a sheet / size / the direction of feed) of a book are determined. In addition, it is satisfactory even if the equipment with which mapping of this equipment does not support postpress language on the way exists.

[0053] The postpress management information 81 called for in the above procedure is passed to each postpress equipment (stitcher equipment 62, cutting equipment 63), and creates the postpress language which is the information (a program/script) for unifying and automating postpress processing. Postpress language consists of the print data identification information 83 for identifying the postpress control information 82, each sheet, or book for controlling postpress equipment. Next, return and the creation procedure of each information are explained to drawing 7.

[0054] The postpress control information 82 is the information for performing setup and control of each postpress equipment, and is created for every postpress equipment. Therefore, it judges first whether creation of the postpress control information 82 of all the equipments corresponding to postpress language was completed (step S24). If creation of the postpress control information 82 is not completed, the active parameter of the postpress control information 82 is created (step S25). There are a physical parameter of a sheet/book, positional information of processing number of copies / number of sheets / the direction of feed, or print data identification information, etc. in this active parameter. Next, the control script of the postpress control information 82 is created (step S26). This control script is divided

07-307827

into the part which described the check procedure of the processing object of a sheet or a book, and the part which described the art and the procedure of a postpress, and description of error processing is also possible for them.

[0055] Next, although the print data identification information 83 is created, it judges first whether creation of the print data identification information 83 of all sheets was completed (step S27). If creation of the print data identification information 83 is not completed, the sheet identification information of the print data identification information 83 is created (step S28). Sheet identification information is made based on postpress management information (mainly sheet information), and consists of information (range assignment of JobID/DocID/SheetID or DocID/SheetID) for identifying the sheet which is the smallest batch in postpress processing. Next, the sheet positional information of the print data identification information 83 is created (step S29). This sheet positional information consists of attribute information about the location for distinguishing the direction/sense of sheets, such as a table/flesh side of a sheet, and straight side / short hand. Such print data identification information 83 is used for the additional printing demand after a check and error generating of the processing object before performing processing with each postpress equipment etc.

[0056] Next, the concrete example about the printing position on the sheet of postpress data is explained. In drawing to the cutting location exterior, (B) files it, drawing 11 is drawing having shown the example of the printing position of postpress data, and, in drawing to a location, its (D) is [in drawing to the location exterior, (A) folds (C) and] drawing showing the case of drawing to another form. In (A) of drawing 11, although the line which crossed on the sheet 91 is printed by four places, the field of the four way type of the direction of outside [this] is the part removed by trimming the edges of the paper evenly by cutting processing, and postpress data 91a encoded by the lower removal part is printed in 1 of sides [them], and the example of illustration. In (B) of drawing 11, postpress data 92b encoded by the part outside binding location 92a of a sheet 92 is printed. In (C) of drawing 11, it is the part into which mid-gear 93a of a sheet 93 processes a chip box, and postpress data 93b encoded by the part is printed. And in (D) of drawing 11, postpress data 95a encoded by sheet 95 with the another sheet 94 which prints print data is printed. In this case, although all the postpress data may be printed on another sheet 95, in postpress data, data with little amount of information like the print data identification information 83 may be printed on the sheet 94 for print data printing, for example, the outside of a cutting location, and the postpress control information 82 with much amount of information may be printed on another sheet 95.

[0057] Moreover, in the same printing side as print data, it is also possible to use the special record approach using special ink and the magnetic substance which cannot use the color, the inconspicuous concentration, or the inconspicuous pattern which is hard to detect by human being's eyes, or cannot be detected by human being's eyes.

[0058] Next, the example of the encoding approach of postpress data is shown. Drawing 12 is drawing showing the example of the encoding approach of postpress data, (A) shows the example by the glyph (Gryph) pattern, and (B) is drawing showing the example by the bar code. The encoded data are printed by the two-dimensional flat surface in press equipment 50, and it is required with postpress equipment 60 that it should be easy to read the printing result with the optical reader 67. For this reason, the expression approach by the bar code 101 shown in the glyph pattern 100 shown in (A) of drawing 12 or (B) as an approach of encoding postpress data is the optimal.

[0059] Next, actuation of postpress equipment is explained. Drawing 13 is a flow chart which shows the flow of actuation of postpress equipment. First, the sheet/book which is the processing object put on the feeder 61 are sent to a location with the optical reader 67 (step S31). The optical reader 67 reads the postpress language encoding data printed by the position (step S32). The image data recognition processor 68 recognizes the reading result, and the postpress language decoding function in it reads it, and it decodes a result (step S33). By this, postpress equipment 60 will obtain the postpress linguistic code in which interpretation activation is possible.

[0060] The postpress linguistic code is sent into the postpress language interpretation control function of the image data recognition processor 68, and the existence of postpress control information is inspected

(step S34). Here, if postpress control information is not included in a postpress linguistic code, processing shifts to the judgment of the existence of print data identification information. Moreover, when postpress control information is in a postpress linguistic code, the postpress control information confirms whether to be the postpress control information over the equipment (step S35). When the existing postpress control information is not its postpress control information, it is confirmed whether print data identification information exists in a postpress linguistic code (step S36). Here, when print data identification information does not exist, it is sent to normal stacker equipment 65, without being processed as it is (step S37), then processing of the following processing object is started.

[0061] On the other hand, by decision of step S35, if the postpress control information over the equipment exists in a postpress linguistic code, the script which can be performed by the postpress language interpretation control section will be taken out and performed (step S38). Moreover, since the postpress control information to the postpress control unit 69 exists, the active parameter and control script are taken out (step S39). Next, by the postpress language code-conversion function, the active parameter and the control script which were taken out are changed into the parameter and program of an equipment proper for performing control of the feeder 61 of postpress equipment 60, stitcher equipment 62, cutting equipment 63, and a feeder 64, and are set as each of those equipments through the postpress control unit 69 (step S40).

[0062] Next, inspection about the existence of the print data identification information in a postpress linguistic code is conducted (step S41). Since it is the sheet with which only the postpress control information used with the postpress equipment exists when print data identification information is not contained in the postpress linguistic code, it is sent to discharge stacker equipment 66 (step S42). When print data identification information is contained in the postpress linguistic code, a postpress language interpretation control function judges according to description of the control script in which the processing object took out previously whether it was a suitable thing (step S43).

[0063] And if the judgment result is suitable, it will be directed that the postpress control device 69 performs processing to a feeder 61, stitcher equipment 62, cutting equipment 63, and a feeder 64. First, if activation of processing is directed, it is directed to a feeder 61 that the postpress control device 69 supplies a processing object to stitcher equipment 62 (step S44). And processing is performed with stitcher equipment 62, suitable processing is further performed with cutting equipment 63 (step S45), and a processing object is sent to normal stacker equipment 65 by the feeder 64 (step S46).

[0064] In the judgment of previous step S43, if judged with a processing object being an inaccurate processing object, the notice of an error etc. will be processed by the approach described by the control script (step S47). It is directed that the postpress control unit 69 eliminates a processing object to a feeder 61 as a part of actuation of the error processing. Then, the object in a feeder 61 is sent to the discharge stacker equipment 66 for an error.

[0065] By judging whether the above-mentioned processing has the remaining processing object, it is continued until a processing object is completed (step S48). Although postpress data required for postpress processing are printed together with printer data and it was made to pass postpress equipment with the gestalt of the above operation, a part of the postpress data can be passed by the option.

[0066] Drawing 14 is the outline block diagram showing the gestalt of operation of the 2nd of this invention. According to this block diagram, about each configuration of a client 10, network equipment 20, press equipment 50, and postpress equipment 60, it is almost the same as the gestalt of operation of drawing 4. However, press equipment 50 is equipped with postpress data output function 51b which sends out a part of output of postpress data generation function 51a to postpress equipment 60 through network equipment 20. Moreover, network equipment 20 is connected to the postpress control unit 69 of postpress equipment 60.

[0067] It is the same as the case of the gestalt of operation of drawing 4 till the place which creates postpress data in response to a print request as actuation in a print server 51 from a client 10, and carries out conversion to a postpress linguistic code from the postpress data here. That is, step S8 shown in drawing 5 is the same actuation.

[0068] After a computer cconverts postpress data with the postpress linguistic code in which

interpretation activation is possible, about the postpress control information 82 which performs setup/control of postpress equipment 60, this is sent to postpress equipment 60 through a network 20. Therefore, this postpress control information 82 will not be printed on a sheet, but only the print data identification information 83 will be printed. Moreover, in the postpress language encoding function of postpress data generation function 51a, since encoding becomes only the print data identification information 83, the data size for printing becomes small, and it becomes possible to arrange postpress language encoding data in the narrow field of a sheet. In connection with this, the postpress data generation function of press equipment 50 and the postpress language interpretation control function in the image data recognition processor 68 of postpress equipment 60 are simplified very much, and small and simplification of the optical reader of postpress equipment 60 can be done.

[0069] Moreover, since press equipment 50 and postpress equipment 60 are connected with network equipment 20, the thing whose additional printing is the need and for which a printing demand is occasionally automatically given to press equipment becomes possible to the error generated with postpress equipment 60 (output location of step S47 in the flow chart of drawing 13).

[0070] Drawing 15 is the outline block diagram showing the gestalt of operation of the 3rd of this invention. According to this block diagram, about each configuration of a client 10, network equipment 20, press equipment 50, and postpress equipment 60, it is almost the same as the gestalt of operation of drawing 4 . However, press equipment 50 was equipped with (floppy disk FD) driving gear 51c, and also equips postpress equipment 60 with floppy disk driving gear 60a.

[0071] In this configuration, the postpress control information 82 which stored in the floppy disk 120 the postpress control information 82 currently sent through network equipment with the gestalt of the 2nd operation, and was stored in that floppy disk 120 can be transmitted to the postpress control unit 69 through floppy disk driving gear 60a of postpress equipment 60. In addition, although the floppy disk 120 was shown in postpress equipment 60 as a means to pass the postpress control information 82 here at the example, you may make it send to postpress equipment 60, for example via other portable media like IC memory card.

[0072] Furthermore, about postpress data, since the postpress language itself is the same as the usual program, a configuration which takes out postpress language data to the exterior of equipment, carries out edit and debugging, and is reinputted to press equipment can be added to a system. Moreover, you may make it equip press equipment with a converter which is changed into the data which suited other systems based on the postpress language data. Furthermore, if edit of data is attained, control which performs description and exact actuation of more complicated processing will be attained by debugging by edit. And simulation of a postpress process and cooperation with shop management can also be realized now by preparing various converters.

[0073]

[Effect of the Invention] It becomes possible to control a postpress processor with a unific approach by having a postpress data generation means in this invention, printing in a form together with print data, and reading the postpress data with postpress equipment, after changing information required for postpress processing into in-between data based on the information inputted into press equipment as having explained above.

[0074] Moreover, since the control information of not only the identification information of a print sheet but a postpress processor etc. can be described to a printing lifter, setup of a postpress processor, and fine processing, fine inspection, and error processing of a form unit can be performed automatically, for example, control of rearrangement and the plug of a page, inspection of the omission, lack, and blank paper of a page, and a direct additional printing demand and a direct error notification become possible.

[0075] Furthermore, since press equipment and the equipment which performs postpress processing can be separated and distributed, the miniaturization of each equipment can be attained.

[Translation done.]